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Evidence of Xenoestrogen Exposure in Fish from Rocky Mountain National Park, USA. A. R. Schwindt[1], C. B. Schreck[1,2], D. H. Landers[3], L. Ackerman[1], S. Simonich[1], M.L. Kent[1]. [1]Oregon State University - Corvallis (United States), [2]Oregon Cooperative Fish and Wildlife Research Unit, USGS-BRD, [3]US Environmental Protection Agency - Corvallis (United States).

Airborne contaminants have been detected in snow, lake sediment and water, and fish in alpine aquatic ecosystems in Canada and Europe. However, little information exists for similar occurrence in alpine areas of the U.S. despite the suspected preferential deposition of some airborne contaminants in high-elevation ecosystems. Therefore a multidisciplinary study was initiated to assess the levels and potential effects of contaminants in alpine aquatic ecosystems in eight western U.S. national parks (http://www2.nature.nps.gov/air/Studies/air_toxics/wacap.htm). Sampling matrices include, snow, lake water and sediment, lichens, conifer needles, and willow bark, moose meat, and fish, all of which are analyzed for contaminants. This study is unique in that sampling sites range from southern California to arctic Alaska, and from 427 m to more than 3,020 m. Furthermore, the lakes sampled represent as near-pristine conditions as potentially found in the world. We have been assessing endocrine and other physiological factors as indicators of endocrine disruption in fishes in these systems. To determine if airborne contaminants adversely affect alpine aquatic biota, salmonid fishes were captured in the summer of 2003, from five lakes in Sequoia, Rocky Mountain, and Olympic National Parks. Fish are being analyzed for contaminants, general health and condition, histological changes, age, diet, sex steroids, and plasma vitellogenin. As indicated by otolith examination, fish age ranged from one to 10 years. All fish appeared healthy based on macroscopic examination, but most histological data are pending. Microgram per milliliter concentrations of plasma vitellogenin were detected in 30-50% of male and immature female fishes captured at Rocky Mountain National Park. Additionally, one of these fish appeared to be hermaphroditic. Fishes and the other matrices will be sampled in the summer of 2004 from lakes in three Alaskan National Parks and included in the discussion as appropriate.